



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,908	11/01/2001	William R. Entley	M-112021 US	7739
7590	05/19/2004		EXAMINER	
David E. Steuber SKJERVEN MORRILL MacPHERSON LLP Suite 700 25 Metro Drive San Jose, CA 95110-1349			ALANKO, ANITA KAREN	
			ART UNIT	PAPER NUMBER
			1765	
			DATE MAILED: 05/19/2004	

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/003,908	ENTLEY ET AL.
<b>Examiner</b>	<b>Art Unit</b>	
Anita K Alanko	1765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 10/22/03 amdt.

2a)  This action is **FINAL**.                    2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 1-26 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1,3-6,19-22,24 and 25 is/are rejected.

7)  Claim(s) 2,7-18,23 and 26 is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
 2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.

4)  Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_ .  
 5)  Notice of Informal Patent Application (PTO-152)  
 6)  Other: \_\_\_\_\_.

---

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

*Claims 1, 3-6, 21-22, 24-25 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Barnes et al (US 5,679,215).*

Barnes discloses a method of operating a deposition process chamber, the method comprising:

placing a substrate in said process chamber (col.4, line 66);

depositing a film on said substrate, said deposition leaving a deposition residue on an interior surface of said chamber (col.3, lines 39-41);

cleaning said deposition residue from said interior surface by creating a fluorine-containing plasma in said chamber, said fluorine-containing plasma leaving a fluorine-containing contaminant on said interior surface (col.4, lines 1-29, especially lines 25-26);

supplying an oxygen-containing gas and hydrogen-containing gas into the process chamber (col.4, lines 53-56);

producing a plasma of a mixture of the oxygen-containing gas and the hydrogen-containing gas, so that the plasma reacts with the fluorine-containing contaminant to form a fluorine containing material (col.4, lines 1-29); and

removing the fluorine-containing material from the process chamber (by exhausting reaction products).

---

As to claim 3, Barnes discloses that the oxygen-containing gas comprises O<sub>2</sub> (col.4, lines 56-58).

As to claim 4 and claim 24, Barnes does not explicitly disclose that the plasma generates H<sub>2</sub>O, however since hydrogen and oxygen ions are present, H<sub>2</sub>O is expected to be generated. When the reference discloses all the limitations of a claim except a property or function, and the examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention but has basis for shifting the burden of proof to applicant as in *In re Fitzgerald*, 619 F.2d 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112- 2112.02.

As to claims 5-6, 22 and 25, since the same steps are conducted in Barnes as in the instant invention, the same results are expected.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

*Claims 1, 3-6, 19-22, 24 and 25 rejected under 35 U.S.C. 103(a) as being unpatentable over Barnes et al (US 5,679,215).*

The discussion of Barnes from above is repeated here.

---

As to claims 19-20, Barnes does not disclose to add an inert gas such as helium, neon, argon or krypton, however it would have been obvious to one with ordinary skill in the art to do so because they are conventional to add to plasmas.

***Allowable Subject Matter***

Claims 2, 7-18, 23 and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art does not teach or suggest a method of operating a deposition process chamber comprising a hydrogen-containing gas selected from a group consisting of NH<sub>3</sub> and H<sub>2</sub>, as in the context of claim 2.

The closest prior art, Barnes, discloses a method of operating a deposition chamber with a hydrogen source of water or hydrogen peroxide, but does not suggest nor is there motivation to provide a hydrogen source of NH<sub>3</sub> or H<sub>2</sub>, as in the context of claim 2.

***Response to Amendment***

Applicant's arguments filed 10/22/03 have been fully considered. The rejection over Xia is withdrawn. Examiner acknowledges that Ngo is directed to treating pattern metal layers, but does not suggest to use ammonia or ammonia and oxygen to clean fluorine residues (from a deposition residue cleaning step) from chamber surfaces.

---

Claims 1, 3-6, 21-22, 24-25 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over newly cited Barnes et al.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anita K Alanko whose telephone number is 571-272-1458. The examiner can normally be reached on Mon,Tues & Fri: 8:30 am-5 pm; Wed&Thurs:10 am-2 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

---

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Anita K. Alanko*  
Anita K Alanko  
Primary Examiner  
Art Unit 1765